

Ser.no. 10/648,281
Amendment dated August 17, 2005
In Reply to Office Action dated February 18, 2005

Amendments to the Drawings

The attached sheets of drawings include changes to Figs. 1, 2, 3 and 3B. The sheets, which include those drawings, replace the original sheets including those drawings.

The only amendments are to add the words "Prior Art" to each of the above drawings.

Attachment: Replacement sheets (4)

Note: any replacement sheet must be identified in the top margin as "Replacement Sheet". Any marked-up annotated sheet showing changes must be labeled "Annotated Marked-up Drawings", and must accompany the replacement sheet in the amendment, e.g. as an appendix.

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REMARKS / ARGUMENTS

In the specification, a correction to a reference numeral has been made on page 8, paragraph 0039 ("61" changed to "71"). The designation "prior art" has been added to references to Figs. 3 and 3B in paragraphs 0022, 0023, 0032, 0033, 0034, 0038 and 0039.

In the drawings, Figs. 1, 2, 3 and 3B have been labeled "Prior Art". Since these drawings are all prior art, Applicant suggests that Fig. 4B should have been selected for publication, and suggests that Fig. 4B should be used for the front page of any patent granted in this case.

Claims 1-8 remain in this application. Claims 2, 7 and 8 have been amended.

The Examiner objected to the drawings, for not illustrating the second and third stick cylinders recited in claim 7. However, it is submitted that these cylinders are indeed shown, in Figs. 7 and 7B. They are items 11 and 16 (first and second cylinders) and item 60 is the third cylinder.

The Examiner further indicated that Figs. 1 and 2 should have borne the legend Prior Art. Corrected drawings sheets are enclosed herewith, not only for prior art Figs. 1 and 2, but also for Figs. 3 and 3A, since those are also prior art.

The Examiner objected to claim 1 on the basis that "pinned" in line 5 should be "pin". However, that is incorrect. Applicant intended to use the word "pinned", so as to impart the meaning "the intermediate pivot is pinned to pivot on the distal end".

The Examiner rejected claims 3-6 under 35 USC 112, first paragraph, stating that there was insufficient enablement for one skilled in the art. However, it is respectfully submitted that the disclosure is clearly understandable by one skilled in the art. Fig. 6 shows double rod cylinder 60 trunnion mounted and extended on the top of the boom. Figure 6B shows a cylinder, item 61, on a different machine, retracted, sectioned through so that piston 64 can be seen with rods 62 and 63 attached to it and the unpinned end of 62 is clearly seen waving in the open. The pinning at 71 and 65 can be seen. In paragraphs 0041 and 0042 it is pointed out to would-be users of

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the invention, that to get a similar, or otherwise tailored, speed and force in both directions, they would have to arrange a trunnion mount at 71. And the inventor also cautions not to try it with such a cylinder located below the boom. The rod 62 is only needed to take up oil and area space on the base end side of the piston so that the hydraulics are balanced with the 63 side. This is all clearly understandable by one with knowledge in the field of the invention.

The Examiner rejected claims 7 and 8 under 35 USC 112, second paragraph, as being indefinite. Applicant has made appropriate corrections above.

The Examiner further pointed out a number of antecedent issues, all of which have also been corrected above.

The Examiner rejected claims 1, 2 and 8 as allegedly being anticipated by the commonly-owned Liu '863 patent. However, it is submitted that the Examiner has erred in the list of similarities between the invention and the Liu patent. This is not surprising, because when looking just at Figs. 6A and 7 without studying the numbers and hydraulic connections on Fig. 8, it might appear that Liu has a reach cylinder 11 above the boom as in this invention. However, that cylinder in Liu is not a reach cylinder.

To clarify terminology, it is important that at the stick location, i.e. where the stick boom pivots on the end of the hoist boom, there is always a cylinder called a stick cylinder, sometimes above and sometimes below that pivot, which does the work of supporting the stick rotating moments. In the invention and the related prior art, another stick located cylinder is added, sometimes above and sometimes below, called the reach cylinder. The reach cylinder positions the stick boom angle with respect to the hoist boom (but does little or nothing to support stick moments). These stick and reach cylinders are piped in hydraulically quite differently and must be treated distinctly when describing the operation of these machines. In systems of the invention and the related prior art, the stick cylinder is the one with its hoses teed into the hoist cylinder hoses. The reach cylinder is the one with hoses going only to a directional control valve.

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In the invention (see Fig. 4B), the inventor has located the reach cylinder 60 that is plumbed to the reach valve above the boom, so that when the reach valve is operated with the reach lever to bring the tool in towards the machine, the base of that cylinder 60 provides the tool retracting force by pushing with its piston area on the tail extension of the stick. The other stick-located cylinder 11, the stick cylinder, is connected by means of hoses 113 and 114 to the hoist cylinder 10. It remains beneath the boom according to the inventor's prior art, to support the load and to thereby allow efficient reach movement to be effected by the reach cylinder 60.

In the Liu '863 patent (see Figs. 7 and 8) it is the load supporting stick cylinder 11, connected with hoses 113 and 114 to the hoist cylinder 10, that is shown above the boom. In other words, that cylinder is not a reach cylinder. The reach cylinder 16 connected to the reach valve is underneath the boom and would tend to push the tool away from the machine when its (reach) cylinder base end is pressurized.

Thus if pressure is applied to Liu's top mounted cylinder via line 114 the entire boom will lift and if applied to line 113 it will lower, but it will not reach. In other words, the circuit is completely different, and will not give a powerful pull-in force by pressurizing the base of the top mounted cylinder as wanted from the present invention.

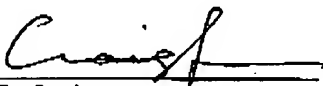
The Examiner further rejected claims 3-6 as allegedly unpatentable over the Liu patent in view of Hudson. However, in view of the preceding, it is suggested that this rejection is now rendered moot.

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For the above reasons, it is respectfully submitted that the application is now in condition for allowance, which is requested.

Respectfully submitted,

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